

Gram-negative



From Wikipedia, the free encyclopedia.

Bacteria that are **Gram-negative** are *not* stained dark blue or violet by Gram staining, in contrast to Gram-positive bacteria.

The difference lies in the cell wall of the two types; Gram-positive bacteria have a high amount of peptidoglycan in their cell wall which the stain interacts with, while Gram-negative bacteria have a cell wall made primarily of lipopolysaccharide. The Gram-negative cell wall is similar to a cytoplasmic membrane, typically only a few layers thick and generally much thinner than Gram-positive types.

Many species of Gram-negative bacteria are pathogenic. This pathogenic capability is usually associated with certain components of their cell walls, particularly the lipopolysaccharide (endotoxin) layer.

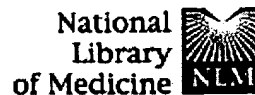
The proteobacteria are a major group of Gram-negative bacteria, including for instance *Escherichia coli*, *Salmonella*, and other Enterobacteriaceae, *Pseudomonas*, *Moraxella*, *Helicobacter*, *Stenotrophomonas*, *Bdellovibrio*, acetic acid bacteria, legionella and a great many others. Other notable groups of Gram-negative bacteria include the cyanobacteria, spirochaetes, green sulfur and green non-sulfur bacteria.

Retrieved from "<http://en.wikipedia.org/wiki/Gram-negative>"

Categories: Bacteria

- This page was last modified 15:17, 3 Sep 2004.
- All text is available under the terms of the GNU Free Documentation License (see **Copyrights** for details).

EXHIBIT 1



Entrez PubMed Nucleotide Protein Genome Structure OMIM PMC Journals Books

Search for

Display Show: Sort Send to

About Entrez

Text Version

☐ 1: Lett Appl Microbiol. 2002;34(2):139-43.

[Related Articles, Links](#)

Entrez PubMed

Overview
Help | FAQ
Tutorial
New/Noteworthy
E-Utilities

PubMed Services

Journals Database
MeSH Database
Single Citation Matcher
Batch Citation Matcher
Clinical Queries
LinkOut
Cubby

Related Resources

Order Documents
NLM Catalog
NLM Gateway
TOXNET
Consumer Health
Clinical Alerts
ClinicalTrials.gov
PubMed Central



The ineffectiveness of organic acids, freezing and pulsed electric fields to control *Escherichia coli* O157:H7 in beef burgers.

Bolton DJ, Catarama T, Byrne C, Sheridan JJ, McDowell DA, Blair IS.

The National Food Centre, Teagasc, Dunsinea, Castleknock, Dublin, Food Studies Research Unit, The University of Ulster, Newtownabbey, UK. dbolton@nfc.teagasc.ie

AIMS: The objective of this study was to investigate the potential value of individual and combined applications of some GRAS (generally regarded as safe) additives with freezing and pulsed electric field (PEF) application, in reducing the risks associated with the presence of *E. coli* O157:H7 in beef burgers. **METHODS AND RESULTS:** Beef burgers, trimmings and filter paper were inoculated with *E. coli* O157:H7 and subjected to a range of chemical and physical treatments. Sequential application of 2% (v/v) lactic acid and freezing (at -20 degrees C for 2 h) resulted in a decrease of approximately 6 log₁₀ cfu cm⁻¹ in *E. coli* O157:H7, but only on filter paper. All other treatments were ineffective. **CONCLUSIONS:** Currently available methods for controlling *E. coli* O157:H7 in beef burgers during production are ineffective. **SIGNIFICANCE AND IMPACT OF THE STUDY:** Further research is needed to develop controls for *E. coli* O157:H7 during beef burger production.

Publication Types:

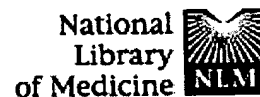
- Evaluation Studies

PMID: 11849511 [PubMed - indexed for MEDLINE]

Display Show: Sort Send to

10/08/2004

EXHIBIT 2



Entrez PubMed

Nucleotide

Protein

Genome

Structure

OMIM

PMC

Journals

Books

Search PubMed

Limits

Preview/Index

History

Clipboard

Details

Display

Abstract

Show:

20

Sort

Send to

Text

About Entrez

Text Version

1: J Food Prot. 2003 Apr;66(4):664-7.

Related Articles, Links

Entrez PubMed

Overview

Help | FAQ

Tutorial

New/Noteworthy

E-Utilities

PubMed Services

Journals Database

MeSH Database

Single Citation Matcher

Batch Citation Matcher

Clinical Queries

LinkOut

Cubby

Related Resources

Order Documents

NLM Catalog

NLM Gateway

TOXNET

Consumer Health

Clinical Alerts

ClinicalTrials.gov

PubMed Central

Thermal inactivation of Escherichia coli O157:H7 in ground beef supplemented with sodium lactate.

Huang L, Juneja VK.

U.S. Department of Agriculture, Agricultural Research Service, Eastern Regional Research Center, 600 East Mermaid Lane, Wyndmoor, Pennsylvania 19038-8598, USA.
lhuan@arserrc.gov

A study was conducted to investigate the antimicrobial effect of sodium lactate (NaL) (0, 1.5, 3.0, and 4.5%) on the survival of Escherichia coli O157:H7 in 93% lean ground beef. Samples inoculated with a mixture of four strains of E. coli O157:H7 (10(7) to 10(8) CFU/g) were subjected to immersion heating in a water bath stabilized at 55, 57.5, 60, 62.5, or 65 degrees C. Results of statistical analysis indicated that the heating temperature was the only factor affecting the decimal reduction times (D-values) of E. coli O157:H7 in 93% lean ground beef. The change in temperature required to change the D-value (the z-value) was determined as 7.6 degrees C. The thermal resistance of this organism was neither affected by the addition of NaL nor by the interactions between NaL and temperature. Adding NaL to ground beef to reduce the thermal resistance of E. coli O157:H7 is therefore not recommended.

PMID: 12696693 [PubMed - indexed for MEDLINE]

Display

Abstract

Show:

20

Sort

Send to

Text

[Write to the Help Desk](#)

[NCBI](#) | [NLM](#) | [NIH](#)

[Department of Health & Human Services](#)

[Privacy Statement](#) | [Freedom of Information Act](#) | [Disclaimer](#)

10/08/2004

EXHIBIT 3